

Earthworm Dissection Lab

Name: _____

Pre-lab Discussion:

The earthworm belongs to a group of animals called annelids (segmented worms). The body of an annelid is usually divided internally and externally into well-defined segments which may be separated from each other by membranous partitions. Except for the tail and head regions, all segments are essentially alike. Other members of this group include the clam worms and tube worms, which live in the ocean, and the leeches.

The earthworm hunts food at night and thus has been called a "night crawler." It usually extends its body from the surface opening of a small tunnel which it makes by "eating" its way through the soil. The rear end of the worm's body remains near the opening while the head end forages for decaying leaves and animal debris.

It has been estimated that an acre of good soil contains over 50,000 earthworms. By their continuous foraging and tunneling these worms turn over 18 to 20 tons of soil per acre and bring over one inch of rich soil to the surface every four to five years. Thus, indirectly, the earthworm enriches farmland and provides for more food in a rapidly expanding population.

Purpose: To observe the structures of male and female *Lumbricus terrestris* and compare those structures to those of *Ascaris lumbricoides*.

Materials:

- One specimen of *Lumbricus terrestris*
- Rubber gloves
- Dissection kit
- Dissection tray
- Pins

Safety:

Put on a laboratory coat if desired. Make sure you handle all specimens with rubber gloves. Handle all dissection equipment carefully. Clean all equipment when finished. *Lumbricus terrestris* requires no special safety measures.

Earthworm Dissection Lab

Pre-Lab Questions:

1. Please fill in the following classification information on Earthworm (*Lumbricus terrestris*).

(use <http://www.itis.gov/index.html>)

- a. Kingdom:
- b. Phylum:
- c. Class:
- d. Order:
- e. Family: *Lumbricidae*
- f. Genus:
- g. Species: *terrestris*

2. What does an earthworm eat?

3. Roundworms are the first organism to have a true coelom. What is a coelom? _____

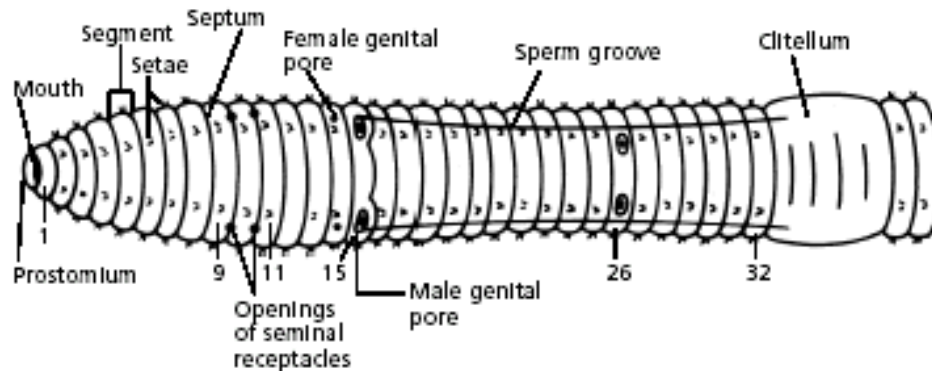
4. Define the following terms (use dictionary)

- a. Dorsal:
- b. Ventral:

Earthworm Dissection Lab

Procedure:

1. The body of the earth worm is comprised of over 100 segments. Each segment looks like a ring. The segments are numbered in sequence from the anterior end. Numbers in the diagrams refer to the segment number.



2. Pin worm to dissecting pan. Using a scalpel or scissors, make a shallow incision in the dorsal side of the clitellum at segment 33. **CAUTION: Scalpels and scissors are very sharp. Report any cuts to your teacher.** Using the forceps and scalpel, spread the incision open, little by little. Separate each **septum** from the central tube using a dissecting needle, and pin down each loosened bit of skin. In order to see the pharynx and ganglion (brain), you must open the worm all the way to segment 1.
3. Use the figure 3 below to locate and identify the five pairs of **aortic arches**, or hearts. Then find the **median dorsal vessel**. Look for smaller blood vessels that branch from the dorsal blood vessel.
4. Locate the digestive tract. Refer to figure 3 to locate the **pharynx, esophagus, crop, gizzard, and intestine**.
To find organs of the nervous system, carefully push aside the digestive and circulatory system organs. Use figure 3 to locate the **ventral nerve cord**. Trace the nerve cord forward to the nerve collar, which circles the **pharynx**. Locate the cerebral ganglion under the pharynx. The ganglia above the pharynx serve as the brain of the earthworm.

Earthworm Dissection Lab

5. Wrap the worm and all its parts in a paper towel. Place the worm in the designated garbage can.
6. Clean up your work area and wash your hands before leaving the lab.

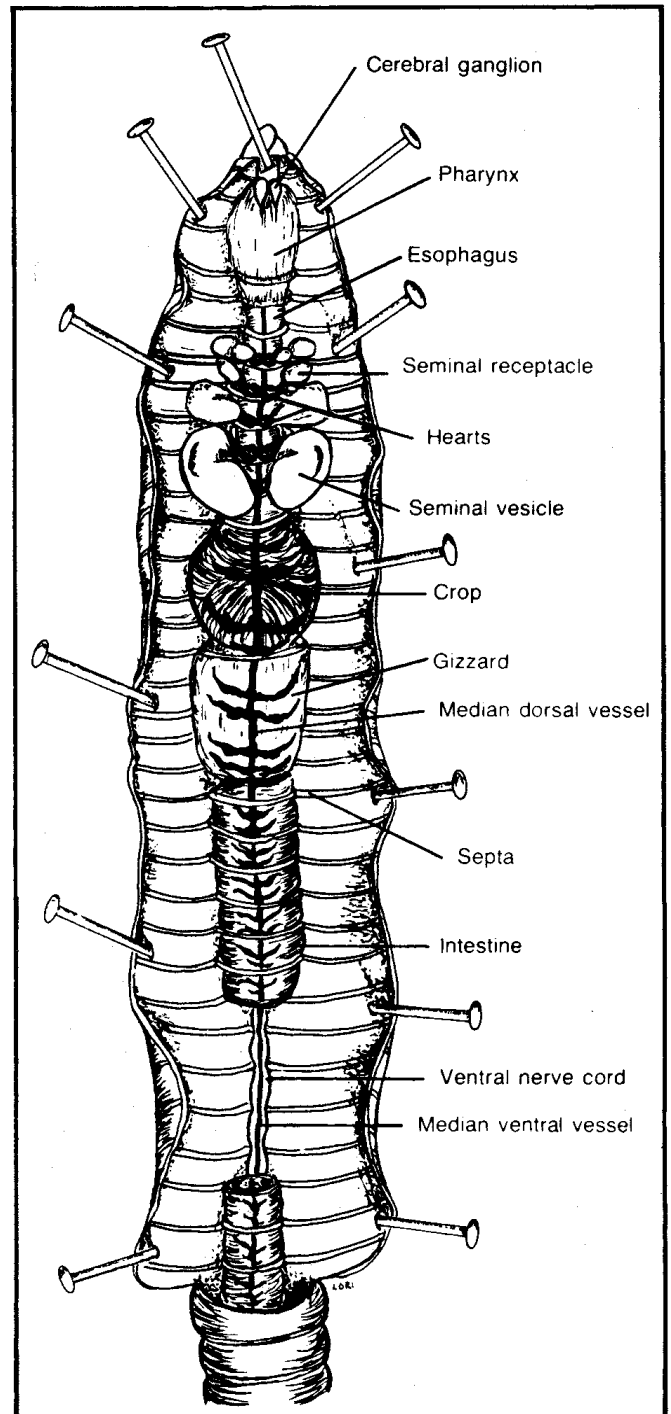


Figure 3

Pictures: *Modern Biology*, *Holt & Carolina Biological Supply*, *Earthworm BioKit*.

Modified from: http://sps.k12.ar.us/massengale/earthworm_dissection.htm

Earthworm Dissection Lab

Post Lab Questions:

1. Describe two ways in which an earthworm's body is adapted to life in the soil.

2. Explain how an earthworm demonstrates cephalization.

3. *Although they are related, the digestive system of an earth worm and Ascaris are very different. Why do you think this is?*

4. *Compare the reproductive system of the earthworm with that of Ascaris. Be sure to note both similarities and differences.*
